

Air Quality Conformity Determination

Between

The 2040 Comprehensive Regional Plan, as updated

The Fiscal Year 2016 to 2019 Transportation Improvement Program

and

The Indiana State Implementation Plan for Air Quality

March 27, 2015

**Northwestern Indiana Regional Planning Commission
Portage, Indiana**

www.nirpc.org

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Purpose

The purpose of this report is to document compliance with section 176(c) of the Clean Air Act as amended (CAAA), and the related requirements of the Final Transportation Conformity Rule (40 CFR Part 51 and 40 CFR Part 93). The air quality conformity determination establishes the compatibility between the state implementation plan, the regional transportation plan and transportation improvement program. The transportation plan includes the region's guide for transportation system development over a minimum twenty-year period. The transportation improvement program (TIP) includes the region's choices for Federal spending on expansion and preservation of the transportation system over a four to five year period. The State Implementation Plan (SIP) includes strategies for attainment and maintenance of the National Ambient Air Quality Standards (NAAQS). The conformity determination is based on a regional emissions analysis that demonstrates compatibility among these three planning documents. The regional emissions analysis uses the region's transportation network model and the USEPA's MOVES emissions simulator to quantify the emissions from all vehicles on the future transportation system. For Lake and Porter Counties, annual emissions of nitrogen oxides, volatile organic compounds and fine particles must not exceed Motor Vehicle Emissions Budgets as established in the State Implementation Plan. The system that was analyzed includes all regionally significant capacity expansion projects in the Lake, Porter and LaPorte County area, and significant projects in northeastern Illinois, regardless of the funding sources.

Applicability

Action Applicability

This conformity determination is required for: adoption, acceptance, approval or support of the Regional Transportation Plan (2040 Comprehensive Regional Plan as updated) and the Transportation Improvement Program (Fiscal Year 2016 to 2019 Transportation Improvement Program) developed pursuant to 23 CFR Part 450 and 49 CFR Part 613.

Geographic Applicability

This conformity determination is required in the ozone non-attainment area, including the Lake/Porter County non-attainment area with respect to the Summer day mobile-source emissions of VOCs and NOx. Lake and Porter Counties are designated as non-attainment of the 1997 National Ambient Air Quality Standard (NAAQS) for "8-hour" ozone. LaPorte County is in attainment of NAAQS.

This conformity determination is not required in the PM_{2.5} unclassifiable area, with respect to annual mobile source emissions of NOx and direct PM_{2.5}. Lake and Porter Counties in Northwestern Indiana are classified as unclassifiable of the 2012 annual National Ambient Air Quality Standard (NAAQS). However, the Interagency Consultation Group decided the 1997 annual National Ambient Air Quality Standard (NAAQS) for PM_{2.5} applies. Lake and Porter Counties are maintenance areas for the 1997 PM_{2.5} NAAQS.

This conformity determination is based on the requirement of 40 CFR 93.118 (Federal Transportation Conformity Rule) for the regional emissions analysis to indicate compliance with the emissions budgets established in the State Implementation Plan for VOC and NOx emissions in Lake and Porter Counties. The regional transportation plan and transportation improvement program must not result in Summer day emissions of VOC and NOx in 2015, 2020, 2025, 2030 and 2040 in excess of the applicable budgets.

This conformity determination is based on 40 CFR 93.119 for the regional emissions analysis to indicate interim reductions of the annual emissions of Nitrogen Oxides and direct PM_{2.5} in the PM_{2.5} maintenance area, including Lake and Porter Counties. The regional transportation plan and transportation improvement program must not result in annual emissions of direct PM_{2.5} and NOx from mobile sources in 2015, 2020, 2025, 2030

and 2040 in excess of the applicable budgets.

Priority

Transportation Control Measures (TCM) in the State Implementation Plan must be given funding priority in the FHWA/FTA approval of any action with air quality consequences. The State Implementation Plan for Lake and Porter Counties and for LaPorte County includes no transportation control measures. This conformity determination is not required to demonstrate priority for TCMs.

Consultation

This conformity determination has been conducted with the involvement of the United States Department of Transportation (USDOT) through the Federal Highway Administration Indiana Division (FHWA) and Federal Transit Administration Region 5 (FTA), United States Environmental Protection Agency Region 5 (USEPA), Indiana Department of Transportation (INDOT), Indiana Department of Environmental Management (IDEM), and Northwestern Indiana Regional Planning Commission (NIRPC).

The consultation process included the issues and procedures that are listed in 40.CFR 93.105 of the final conformity rule and the August 2007 Interagency Consultation Guidance.

An Interagency Consultation Group (ICG) meeting was conducted on February 11, 2015 at 2:00 p.m. Eastern Time by teleconference. The meeting was attended by Scott Weber, Steve Strains, and Kathy Luther of NIRPC, Frank Baukert, Jay Mitchell, Sara Ornellas, Korey Chu, and Jeanette Wilson of INDOT, Larry Heil and Joyce Newland of FHWA, Tony Greep of FTA, Tony Maietta of USEPA, and Shawn Seals of IDEM. Dean Munn of the Corradino Group, under contract with INDOT to update the MOVES post-processor, also joined the call. The teleconference included a discussion of the schedule for the NIRPC 2040 Comprehensive Regional Plan update. Scott Weber informed the ICG that NIRPC planned on having the 2040 Comprehensive Regional Plan update and 2016 to 2019 Transportation Improvement Program adopted at NIRPC's May 2015 Full Commission Meeting.

Dean Munn updated the ICG about the new emissions rates and fleet mixes gathered in 2014 by the Indiana Bureau of Motor Vehicles being inputted into the MOVES post-processor. Dean Munn said that his experience has shown that the updated fleet mix translates into lower emissions than the older fleet mix data. Whereas the older fleet mix data was gathered by a VIN-decoder, the updated fleet mix from 2014 is based on a VIN-decoder supplemented with vehicle registration data. The result has shown fewer total vehicles in the updated fleet mix data than the old data. Larry Heil explained that the overall process of running a Regional Emissions Analysis through the MOVES post-processor is the same as before with the older fleet mix data, but that the new fleet mix data will now be used in the post-processor. Dean Munn specified that only the hourly VMT fractions in the MOVES post-processor rates would have to be adjusted based on the updated fleet mix data and INDOT traffic, not the monthly or yearly VMT fractions. Dean Munn also mentioned that Corradino had backcasted 2004, 2008, and 2010 emissions rates based on the 2014 fleet mix data and that it would be an option for NIRPC to use these rates for demonstrating conformity from previous regional emissions analyses. Scott Weber did not recommend using 2014 data for previous year rates because those previous years were already documented and it might open up inconsistencies. Larry Heil agreed that consistency valuable. The ICG agreed to not adjust previous regional emissions analysis based on the 2014 data.

Scott Weber then moved the discussion to the regional emissions analysis methodology and planning assumptions. The ICG agreed that 2015, 2020, 2025, 2030, 2035, 2040, and 2045 would be the analysis

years in the regional emissions analysis. The year 2045 was included because Dean Munn said that the updated emissions rates went through 2045 even though the 2040 Comprehensive Regional Plan update would still have 2040 as a horizon year. Scott Weber then talked about the new capacity expansion projects that NIRPC had received applications for. A Willowcreek Road expansion project in Porter County between 700 N and 100 S received an application from Porter County. The segment of this project between 700 N and US-30 had already been included in NIRPC's 2040 Comprehensive Regional Plan for completion by 2030, but the scope has increased an additional approximately 3 miles further south between US-30 and 100 S, still expected to be completed by 2030. Scott Weber also mentioned 3 transit projects that would be included into the regional emissions analysis: Triangle Transit (a new fixed-route bus service in LaPorte County), Gary Public Transportation Corporation's Lakeshore Service (a new fixed-route bus service in Hammond, Highland, and Munster), and Gary Public Transportation Corporation's Livable Broadway bus service (a Bus Rapid Transit-Light service that would be an improvement to the existing GPTC routes 17 and 18). Members of the ICG received materials on these projects and agreed with including them in the regional emissions analysis. Scott Weber mentioned that NIRPC has incorporated the 2010 demographic information from the U.S. Census Bureau into the NIRPC travel demand model, but will still use the preexisting 2040 demographic projections adopted in June 2011. Also, Scott Weber provided the ICG with 2012 model validation factors that will be used to calibrate the model based on the 2012 Highway Performance Monitoring Standard (HPMS) data for VMT versus the NIRPC model's 2012 VMT predictions.

Scott Weber next introduced the discussion of the relevant SIP budgets that the regional emissions analysis would be demonstrating conformity to. Scott mentioned that his understanding was that the 2008 Summer-Day Ozone NAAQS and 1997 PM_{2.5} NAAQS would be the relevant SIP budgets. The ICG agreed that NIRPC should demonstrate conformity with the SIP regarding 1997 PM_{2.5}. Tony Maietta explained that actually NIRPC should demonstrate conformity to the 1997 Summer-Day Ozone NAAQS if the 2040 Comprehensive Regional Plan update and FY 2016 to 2019 Transportation Improvement Program are planned to be adopted on or before May 2015. Joyce Newland clarified that NIRPC would be running the regional emissions analysis with 1997 Ozone standards, and the ICG confirmed this. Scott then adjourned the call.

An Interagency Consultation Group (ICG) teleconference call was held March 27, 2015 at 9:00 a.m. Central Time. Scott Weber of NIRPC, Frank Baukert, Greg Katter, Jay Mitchell, and Jeanette Wilson of INDOT, Joyce Newland of FHWA, Tony Maietta of USEPA, and Shawn Seals of IDEM participated in the call. The call included a discussion of the timeframe of NIRPC's planned adoption of its 2040 Comprehensive Regional Plan update and FY 2016 to 2019 Transportation Improvement Program on May 21, 2015. It also discussed the planned public involvement period in anticipation of that adoption date. Scott Weber mentioned that NIRPC had held 6 out of 7 scheduled public meetings, and that originally the public involvement period where comments would be accepted was planned for March 6, 2015 to April 6, 2015, but would be rescheduled to March 27, 2015 to April 27, 2015 in order to account for this conformity determination.

Jeanette Wilson mentioned that she had not yet received NIRPC's FY 2016 to 2019 TIP for review, and Scott Weber responded that he was not aware that the TIP had not yet been packaged as a complete document and sent off to review, noting that NIRPC had shared detailed financial information about the TIP at its public meetings. The ICG agreed that NIRPC would package the entire FY 2016 to 2019 TIP, with highway and transit together along with this conformity determination, as soon as possible and released for 30-day public involvement in a transparent fashion.

The discussion then moved to the reason behind the delay in this conformity determination showing a conforming 2040 Comprehensive Regional Plan as updated and FY 2016 to 2019 TIP. Tony Maietta mentioned that he had heard that Vehicle Miles Traveled (VMT) being double counted was the culprit. Scott Weber confirmed that this was indeed the case. The MOVES post-processor already adjusts for intrazonal trips (trips that begin and end in the same Travel Analysis Zone in the Travel Demand Model

NIRPC uses and would otherwise be unrecognizable as emissions-generating trips). Scott Weber explained that what was causing the confusion was seeing written in previous conformity determinations that the Travel Demand Model was being adjusted by calibration factors from the published HPMS estimates of VMT. While these were necessary in the pre-MOVES era, the MOVES post-processor adjustment made them no longer necessary. He admitted to not applying these to past conformity determinations but mistakenly applied them to attempt to show the conformity determination for the present 2040 CRP update and FY 2016 to 2019 TIP. That resulted in a SIP budget violation for VOC in 2020, which has since been corrected for by removing the HPMS calibration factors.

Scott Weber then mentioned that since the emissions inventory results in Table 4 show that VOC in 2020 is so close to the budget, he had discussed with Larry Heil and Dean Munn a couple weeks before this call that perhaps Indiana should amend its SIP. Shawn Seals replied that he saw little reason to amend the 1997 Ozone SIP, which NIRPC is currently using for this conformity determination, since Tony Maietta mentioned that USEPA will revoke the 1997 Ozone NAAQS on April 6, 2015. The ICG agreed that unless the State of Indiana saw amending a SIP as a high priority, there was little reason to amend the SIP.

The teleconference call ended with Scott Weber reminding the ICG of the planned May 21, 2015 adoption date as well as thanking the ICG participants for their continued cooperation and resolution of the mistake.

Public consultation

In compliance with the adopted NIRPC Public Participation Plan, an opportunity for public comment on the proposed conformity determination has been provided. A media release was issued on March 27, 2015 that established a comment period extending from March 27, 2015 to April 27, 2015. This proposed conformity determination is available to the public for review at the NIRPC offices, 6100 Southport Road, Portage and on the web at www.nirpc.org. The comments and responses will be inserted here at the end of the public comment period.

Content of the Transportation Plan

The transportation plan specifically describes the transportation system envisioned for the following horizon years: 2015, 2020, 2025, 2030, 2040. An additional horizon year of 2045 was agreed to by the ICG. These horizon years meet the USEPA's requirements of 40 CFR 93.106 (a)(1) of the conformity rule.

The 2040 Comprehensive Regional Plan quantifies and documents the demographic and employment factors influencing expected transportation demand. The future levels of population, households and employment imply the magnitude of development envisioned for each traffic analysis zone. These forecasts are based on the 2040 Growth and Revitalization Vision adopted by NIRPC on October 28, 2010. The NIRPC 2040 Comprehensive Regional Plan was formally adopted on June 23, 2011. The current conformity determination is the first to apply adjustments from the 2010 Census to the forecasts, a directive agreed to by the ICG.

The highway and transit systems are described in terms of the regionally significant additions or modifications to the existing transportation network, which the transportation plan envisions to be operational in the analysis years. The capacity-expansion projects in the 2040 Regional Transportation Plan are listed on Table 1.

Additions and modifications to the highway network are sufficiently identified to indicate intersections with existing regionally significant facilities, and to determine their effect on route options between transportation analysis zones. Each added or modified highway segment is sufficiently identified in terms of its design concept and design scope to allow modeling of travel times under various traffic volumes, consistent with the modeling methods for area-wide transportation analysis in use by NIRPC. The NIRPC transportation model

includes network links representing road segments for all collector and higher functional classifications, with nodes representing all significant intersections.

Transit facilities, equipment, and services envisioned for the future are identified in terms of design concept. The design scope and operating policies for these transit projects have been assumed for the regional emissions analysis, based on local transit services. The NIRPC transportation model includes a mode choice model, and the transportation model is used to estimate transit ridership from the implementation of future transit facilities, equipment and services. Table 1 lists the projects, beginning with projects proposed for completion since 2010.

Table 1. 2040 Comprehensive Regional Plan as Update and FY 2016 to 2019 Transportation Improvement Program Capacity Expansion Projects in the Regional Emissions Analysis

2015 Network (includes the existing plus committed network, plus the following projects)

ID	Agency	Town of Porter	Completion before	2015
245	Road	SR-49	Concept	Minor Arterial Street
	From	Oak Hill Road	Scope	Cancellation of Travel Lane Elimination
	To	NICTD Bridge	Model Representation	Restore Removed 1 SB travel lane
ID	Agency	IDOT	Completion before	2015
232	Road	I-80	Concept	Interstate Highway
	From	US-30	Scope	Added Travel Lanes
	To	US-45	Model Representation	Add 1 lane in each direction
ID	Agency	INDOT	Completion before	2015
121	Road	SR-2	Concept	Principal Arterial Highway
	From	one half mile West of I-65	Scope	Added Travel Lanes
	To	one half mile East of I-65	Model Representation	Add 1 travel lane in each direction
ID	Agency	INDOT	Completion before	2015
29	Road	SR-49	Concept	Principal Arterial Highway Interchange
	From	one half mile N. of CR-400N	Scope	New Interchange to Replace At-grade Intersection
	To	one half mile S. of CR-400N	Model Representation	New links, 1 travel lane in each direction, ramp attributes
ID	Agency	IDOT	Completion before	2015
236	Road	I-57	Concept	Interstate Highway
	From	At I-294	Scope	New Interchange
	To		Model Representation	New links, ramp attributes
ID	Agency	Cedar Lake	Completion before	2015
241	Road	133rd Avenue	Concept	Principal Arterial Street
	From	US-41	Scope	Added Center Turn Lane
	To	Industrial Drive	Model Representation	Increase capacity by 10%
ID	Agency	Gary	Completion before	2015
38a	Road	Buffington Access 2A-3	Concept	Collector Street
	From	SR-912	Scope	Added Travel Lanes
	To	Casinos	Model Representation	Add 1 travel lane in each direction

ID	Agency	Gary Public Transp. Corp.	Completion before	2015
246	Service	Lakeshore South	Concept	New Fixed Route Bus Service
	From	Hammond	Scope	Added Fixed Route Transit Service
	To	Loop via Woodmar, PUC	Model Representation	Add Transit Line on Road Links

ID	Agency	Michigan City Transit	Completion before	2015
247	Service	Triangle Transit	Concept	New Fixed Route Bus Service
	From	Michigan City	Scope	Added Fixed Route Transit Service
	To	LaPorte and PNC-Westville	Model Representation	Add Transit Line on Road Links

2020 Network (includes the 2015 network, plus the following projects)

ID	Agency	INDOT	Completion before	2020
243	Road	I-65	Concept	Interstate Highway
	From	US-231	Scope	Added Travel Lanes
	To	SR-2	Model Representation	Add 1 NB & 1 SB travel lane

ID	Agency	INDOT	Completion before	2020
244	Road	SR-912	Concept	Other Expressway
	From	Riley Rd Interchange	Scope	New Construction
	To	0.6 miles West of Michigan Avenue Interchange	Model Representation	New links, 2 travel lanes in each direction, other expressway attributes, \$2.50 tollbooth

ID	Agency	INDOT/IDOT	Completion before	2020
233	Road	Illiana	Concept	Limited access toll road
	From	I-65	Scope	New facility
	To	I-55 (IL)	Model Representation	New 4-lane limited access toll road, \$0.11 per mile

ID	Agency	INDOT	Completion before	2020
234	Road	I-65	Concept	Interstate Highway
	From	US-30	Scope	Added Travel Lanes
	To	US-231	Model Representation	Add 1 NB & 1 SB travel lane

ID	Agency	INDOT	Completion before	2020
250	Road	US-41	Concept	Principal Arterial Highway
	From	93 rd Ave	Scope	Added Center Turn Lane
	To	US-231	Model Representation	Increase Capacity by 10%

ID	Agency	Lake County	Completion before	2020
235a	Road	45th Avenue	Concept	Minor Arterial Street
	From	Whitcomb Street	Scope	Added Center Turn Lane
	To	Grant Street	Model Representation	Increase Capacity by 10%

ID	Agency	Merrillville	Completion before	2020
105a	Road	Mississippi Street	Concept	Minor Arterial Street
	From	US-30	Scope	Added Travel Lanes
	To	93 rd Ave	Model Representation	Add 1 travel lane in each direction

ID	Agency	Munster	Completion before	2020
217	Road	45th Avenue	Concept	Minor Arterial Street
	From	At Calumet Avenue	Scope	Intersection Realignment
	To		Model Representation	Reconfigure intersection links

ID	Agency	Hobart	Completion before	2020
226	Road	61st Avenue	Concept	Minor Arterial Street
	From	Colorado Street	Scope	Added Center Turn Lane
	To	SR-51	Model Representation	Increase capacity by 10%

ID	Agency	Gary Public Transp. Corp.	Completion before	2020
248	Service	Lakeshore North	Concept	New Fixed Route Bus Service
	From	Hammond	Scope	Added Fixed Route Transit Service
	To	Loop via Horseshoe Casino	Model Representation	Add Transit Line on Road Links

ID	Agency	Gary Public Transp. Corp.	Completion before	2020
249	Service	Livable Broadway	Concept	Enhanced Fixed Route Bus Service
	From	Gary Metro Center	Scope	Added Fixed Route Transit Service
	To	Crown Point	Model Representation	Add Transit Line on Road Links

2025 Network (includes the 2020 network, plus the following projects)

ID	Agency	Hammond	Completion before	2025
240	Road	Gostlin/Sheffield/Chicago	Concept	Minor Arterial Street
	From	Illinois State Line	Scope	Added Travel Lanes
	To	US-41	Model Representation	Add 1 travel lane in each direction

ID	Agency	Lake County	Completion before	2025
235b	Road	45th Avenue	Concept	Minor Arterial Street
	From	Colfax Street	Scope	Added Center Turn Lane
	To	Whitcomb Street	Model Representation	Increase Capacity by 10%

ID	Agency	Merrillville	Completion before	2025
105b	Road	Mississippi Street	Concept	Minor Arterial Street
	From	93 rd Ave	Scope	Added Travel Lanes
	To	101 st Ave	Model Representation	Add 1 travel lane in each direction

ID	Agency	Merrillville	Completion before	2025
214	Road	101st Avenue	Concept	Minor Arterial Highway
	From	SR-53	Scope	Added Travel Lanes
	To	Mississippi Street	Model Representation	Add 1 travel lane in each direction

ID	Agency	Schererville	Completion before	2025
96	Road	Kennedy Avenue	Concept	Minor Arterial Street
	From	Main Street	Scope	Added Travel Lanes
	To	US-30	Model Representation	Add 1 travel lane in each direction

ID	Agency	St. John	Completion before	2025
218	Road	93rd Avenue	Concept	Minor Arterial Street
	From	White Oak Avenue	Scope	Added Center Turn Lane
	To	US-41	Model Representation	Increase capacity by 10%

2030 Network (includes the 2025 network, plus the following projects)

ID	Agency	Munster	Completion before	2030
86	Road	Main Street	Concept	Minor Arterial Street
	From	Burnham Avenue	Scope	New Construction and added travel lanes
	To	Calumet Avenue	Model Representation	New links, 2 travel lanes in each direction, Minor Arterial attributes, add 1 lane / direction in existing segment

ID	Agency	Valparaiso	Completion before	2030
214	Road	Vale Park Road East	Concept	Minor Arterial Street
	From	Calumet Avenue	Scope	Added Travel Lanes
	To	Silhavy Road	Model Representation	Add 1 travel lane in each direction

ID	Agency	Porter County	Completion before	2030
237	Road	Willowcreek Road	Concept	Minor Arterial Highway
	From	CR-700N	Scope	New Construction
	To	CR-100S	Model Representation	New links, 2 travel lanes in each direction, Minor Arterial attributes

2040 Network (includes the 2030 network, plus the following projects)

ID	Agency	Valparaiso	Completion before	2040
238	Road	Division Road	Concept	Minor Arterial Street
	From	SR-2	Scope	Added Travel Lanes
	To	US-30	Model Representation	Add 1 travel lane in each direction

The NIRPC transportation modeling process does not include a land use model. The socioeconomic data for the traffic analysis zones reflect the 2040 Growth and Revitalization Vision for northwestern Indiana.

Relationship of Transportation Plan and TIP Conformity with the National Environmental Policy Act (NEPA) Process

The degree of specificity required in the transportation plan and the specific travel network assumed for air quality modeling do not preclude the consideration of alternatives in the NEPA process, including environmental assessment and preparation of environmental impact statements, or other project development studies. Should the NEPA process result in a project with design concept and scope significantly different from that in the transportation plan or transportation improvement program, the project must meet the tests for total annual system emissions equal to or below the level of the 2002 emissions or the applicable budgets for the analysis years, and provide for TCM priority, if applicable, before NEPA process completion.

During the congestion management process and other analyses for the capacity expansion projects in the 2040 Regional Transportation Plan, options other than the assumed design concept and design scope must

be considered.

Fiscal Constraints for the Transportation Plan and TIP

NIRPC has reviewed all of the projects in the 2040 Comprehensive Regional Plan as updated to determine through project sponsor interviews and the Transportation Policy Committee that the projects meet requirements for fiscal constraint. INDOT has submitted under separate cover a document that describes how the proposed Statewide Transportation Improvement Program (STIP), including those projects in the FY 2016 to 2019 Transportation Improvement Program, meets fiscal constraint requirements. The Transit Operators Roundtable has thoroughly vetted the transit projects in the 2040 Comprehensive Regional Plan as updated to determine that they meet fiscal constraint requirements.

Criteria and Procedures for the Conformity Determination

The Interagency Consultation Group Conformity Consultation Guidance establishes the criteria and procedures for the Conformity Determination. The Indiana SIP includes a duplicate of the original Federal transportation conformity rule. On August 15, 1997, after the establishment of the Indiana conformity rule as part of the SIP, the Federal conformity rule was amended to provide flexibility and streamlining. On June 1, 1998, IDEM issued a nonrule policy document that provides guidelines for conformity determination in light of Federal amendments. The nonrule policy document established the intent of IDEM to revise the SIP to mirror the new Federal amendments and to exercise its enforcement discretion to allow the features of the Federal amendments to be used.

The conformity determination for the 2040 Comprehensive Regional Plan as updated and Fiscal Year 2016 to 2019 Transportation Improvement Program meets the requirements of 40 CFR 93.110 (latest planning assumptions), 93.111 (latest emissions model), and 93.112 (consultation) of the Federal conformity rule, for conformity determinations during all periods, and 40 CFR 93.113 (b and c) (transportation control measures), 93.118 (adherence to motor vehicle emissions budgets), and 93.119 (interim emissions reductions) of the conformity rule, for the transportation improvement program conformity determination with respect to Summer day VOC and NO_x emissions and the annual direct PM_{2.5} and NO_x emissions.

Latest Planning Assumptions

The conformity determination is based on the latest planning assumptions. The transportation model uses the assumptions derived from estimates of current and future population, households, employment, travel and congestion most recently developed by NIRPC and approved by NIRPC. The estimates include 2010 population estimates from the 2010 Census, and employment estimates from the Indiana Department of Workforce Development ES-202 file. Trip generation rates, trip length, mode choice and other model parameters are based on a 1995 Household Travel Survey in Northwestern Indiana and compared to nationwide data. The 2007-2008 Household Travel Survey has not been incorporated into the trip generation rates for the transportation network model due to the lack of funding for the proposed model overhaul. The travel demand model was validated with respect to the year 2012 Highway Performance Monitoring System. The 2015, 2020, 2025, 2030 and 2040 population, household and employment forecasts were prepared in March 2011 and intermediate years updated to take into account the 2010 Census in January 2015 by NIRPC, using the latest available information.

The transit operating policies (including fares and service levels) were changed for the previous conformity determination and are reflected in this conformity determination. Changes are assumed in existing transit fares within northwest Indiana over time. The model represents tolls on the Indiana Toll Road, the Illiana Expressway, and Cline Avenue Bridge by links that correspond to tollbooths with a fixed travel time, based on the toll amount. The toll increases have been reflected in the transportation networks.

Planning Assumptions

1. Population forecasts have been prepared by NIRPC. For the development of the 2040 CRIP, NIRPC has been allowed to use forecasts that are not constrained by the county control totals, which have tended to underestimate growth in the region. The population numbers show a large increase in Porter County, and a slight increase in LaPorte County and Lake County. The population, households and employment data are allocated to the traffic analysis zones and are used in the regional emissions analysis. The totals for the three-county area are included in Table 2.

Table 2. Socioeconomic Totals

Year	Population	Households	Employment
2000	741,468	277,324	303,850
2010	771,815	292,477	277,584
2015	775,200	291,315	280,147
2020	827,438	337,211	302,828
2025	855,249	359,578	315,450
2030	883,060	381,944	328,071
2035	910,872	404,311	340,693
2040	938,683	426,678	353,315
2045	966,497	449,046	365,937

2. The Highway Performance Monitoring System (HPMS) data provided the basis for an analysis of the growth in Vehicle-Miles of Travel. Based on this data, the actual annual rate of growth of travel can be determined. For the three-county area, the rates range from -0.88% per year to 2.84% per year between 1993 and 2008. Over this period, the annual rate of growth is 1.85% per year.

Table 3. Vehicle-Miles of Travel

Data from the Highway Performance Monitoring System (HPMS)

Year	VMT Estimate (HPMS)	Annual Rate of Growth
1993	18,829,591	
1994	18,663,552	-0.88%
1995	19,847,112	2.67%
1996	19,842,716	1.76%
1997	21,058,741	2.84%
1998	21,638,065	2.82%
1999	21,249,847	2.04%
2000	21,527,000	1.93%
2001	21,987,000	1.96%
2002	22,147,635	1.82%
2003	22,201,000	1.66%
2004	22,154,000	1.49%
2005	22,216,000	1.39%
2006	22,305,000	1.31%
2007	22,397,000	1.25%
2008	21,792,000	0.98%
2009	26,507,000	2.55%
2010	20,359,000	0.48%

2011	26,545,000	2.28%
2012	25,461,000	1.85%

3. Vehicle registration data have been received from the Indiana Bureau of Motor Vehicles. These data are split by vehicle type, and have an associated date of approximately December 31, 2014. The Indiana Department of Environmental Management provided vehicle age information for cars and light trucks, from the application of a vehicle identification number (VIN) decoder as well as registrations by vehicle type directly from the Bureau of Motor Vehicles. This vehicle registration data have been used in MOVES, reflecting vehicle fleet age by vehicle type for smaller vehicles. For larger vehicle types, default data have been determined to be the best available fleet age information.

Horizon Year

The horizon year is 2040. An extra horizon year of 2045 was added by consultation with the ICG. The 2040 Comprehensive Regional Plan provides a policy-oriented distribution of population and households. This distribution is reflected in the project selection system for the plan, giving significant weight to projects in the revitalization areas in Gary, Hammond, East Chicago and Michigan City, as well as livable centers that provide for mixed land uses and greater transportation options.

The methods and assumptions for the transportation network model in the regional emissions analysis are included in The Transportation Model Documentation Report.

Latest Emissions Model

On March 2, 2010 the USEPA officially released the MOVES model, with a two year grace period. The MOVES model was updated in July 2014. INDOT has provided a utility that prepares the output of a TransCAD model for use with MOVES. INDOT has also run the MOVES model and provided emissions factors to all metropolitan areas in the state for use in conformity analysis. The MOVES model has been used for this conformity analysis. The motor vehicle emissions budgets have been revised to use the MOVES emissions rates.

TCM Implementation

The 2040 Regional Transportation Plan and Fiscal Year 2014 to 2017 Transportation Improvement Program are not required to provide for timely implementation of TCMs from the SIP, since the SIP currently contains no TCMs.

Consistency with the Motor Vehicle Emission Budgets in the SIP

The regional emissions analysis has estimated emissions of VOC and NO_x as ozone precursors. The regional emissions analysis includes estimates of emissions from the entire transportation system, including all regionally significant projects contained in the transportation plan and all other regionally significant highway and transit projects expected in the nonattainment area in the time frame of the transportation plan. Table 4 shows that regional emissions for the ozone precursors fall below the budgets in the State Implementation Plan for the 1997 Ozone Summer Day 8-hour standard (used in lieu of an applicable 2008 Ozone Summer Day 8-hour standard because Indiana has yet to adopt a State Implementation Plan for that standard).

The emissions analysis methodology meets the requirements of 40 CFR 93.122(b) of the Federal Conformity Rule, for conformity determinations based on estimates of regional transportation-related emissions completed after January 1, 1997.

Implementation of the Lake and Porter County projects in the regional transportation plan results in motor vehicle emissions that are below the levels of the applicable Motor Vehicle Emissions Budgets, as shown in Table 4. This table also indicates that the implementation of the Lake and Porter County projects in the regional transportation plan result in motor vehicle emissions that are below the level of the proposed Motor Vehicle Emissions Budgets in the State Implementation Plan for the PM2.5 unclassifiable area.

Emission Reductions in Areas Without Motor Vehicle Emissions Budgets

The establishment of Motor Vehicle Emissions Budgets that cover ozone and fine particles and their precursor emissions eliminates the requirements to demonstrate emissions reductions.

Procedures for Determining Regional Transportation-Related Emissions

The regional emissions analysis for the transportation projects includes calculations of vehicle emissions at the aggregate level for the entire transportation system, including all regionally significant expansion projects expected in the nonattainment area. The analysis includes FHWA/FTA-funded projects proposed in the transportation plan, all Indiana Toll Road projects and all other regionally significant projects which are disclosed to NIRPC. Vehicle miles traveled (VMT) from projects which are not regionally significant are estimated in accordance with reasonable professional practice, using the regional travel demand model and the procedure for projects that are regionally significant.

The regional emissions analysis does not include any TCMs for emissions reduction credit. The regional emissions analysis does not include emissions reduction credit from projects, programs, activities, or control measures which require a regulatory action in order to be implemented.

Ambient temperatures used for the regional emissions analysis are consistent with those used to estimate the emissions in 2002. All other factors, for example the fraction of travel in a hot stabilized engine mode, are consistently applied.

Reasonable methods have been used to estimate nonattainment area VMT on off-network roadways within the urban transportation planning area, and on roadways outside the urban transportation planning area. For 2015, 2020, 2025, 2030, 2035, 2040 and 2045, estimates of regional transportation-related emissions used to support the conformity determination have been made using a network-based travel model with travel calculations performed at the individual link level according to procedures and methods that are available and in practice and supported by current and available documentation (see The Transportation Model Documentation Report kept at NIRPC's offices at 6100 Southport Road in Portage). Intrazonal VMT has been added to the link VMT on associated centroid connectors for the analysis. The travel characteristics were calculated separately for three vehicle classes: autos (light duty gasoline vehicles), non-heavy trucks (light duty gasoline trucks) and heavy trucks (heavy duty diesel vehicles) and separately for three time periods: morning peak, afternoon peak and off peak. Using factors provided from the Indiana Department of Environmental Management, the travel characteristics were split to represent 28 vehicle types, and the emissions were calculated using a Microsoft Excel spreadsheet. The participating agencies have discussed these modeling procedures and practices through the interagency consultation process.

Land use, population, employment, and other network-based travel model assumptions have been documented based on the best available information. The land development and use in the 2040 Growth and Revitalization Vision adopted by NIRPC and underpinning the 2040 Regional Transportation Plan are consistent with the future transportation system alternatives for which emissions have been estimated. The distribution of employment and residences are reasonable.

A capacity-sensitive assignment methodology has been used, and emissions estimates are based on a methodology, which differentiates between peak and off peak link volumes and speeds, and uses speeds based on final assigned volumes, post-processed in the database. Zone-to-zone travel impedances used to distribute trips between origin and destination pairs are in reasonable agreement with the travel times that are estimated from final assigned traffic volumes, using a feedback procedure iterated five times. These times have also been used for modeling mode splits. The network-based travel model is reasonably sensitive to changes in the time(s), cost(s), and other factors affecting travel choices. Reasonable methods in accordance with good practice have been used to estimate traffic speeds and delays in a manner that is sensitive to the estimated volume of travel on each roadway segment represented in the network-based travel model. Highway Performance Monitoring System (HPMS) estimates of vehicle miles traveled (VMT) are considered the primary measure of VMT within the portion of the nonattainment area and for the functional classes of roadways included in the nonattainment area.

Regional Transportation-Related Emissions Results

Table 4 presents the results of the regional transportation emissions analysis for the 2040 Comprehensive Regional Plan as updated and the FY 2016 to 2019 Transportation Improvement Program including the projects as specified in Table 1. As seen in this table, the emissions are lower than the budgets in all cases.

Table 4. Regional Emissions Analysis Results

Ozone Emissions in U.S. Tons per Day Lake and Porter Counties

	2015	2020	2025	2030	2035	2040	2045
VOC Budget	13.99	5.99	5.99	5.99	5.99	5.99	5.99
VOC Emission	9.65	5.96	5.17	3.99	3.12	2.78	2.69
NOx Budget	47.26	16.69	16.69	16.69	16.69	16.69	16.69
NOx Emissions	25.43	14.68	9.72	7.70	6.52	6.28	6.28

PM2.5 Emissions in U.S. Tons per Year Lake and Porter Counties

	2015	2020	2025	2030	2035	2040	2045
Direct PM Budget	374.30	374.30	188.73	188.73	188.73	188.73	188.73
Direct PM Emission	319.18	182.66	132.14	113.91	106.20	105.76	106.23
NOx Precursor Budget	10,486.08	10,486.08	5,472.34	5,472.34	5,472.34	5,472.34	5,472.34
NOx Precursor Emissions	9,356.34	5,630.24	3,748.99	2,953.14	2,551.00	2,471.00	2,478.12

Conclusion

The Summer day on-road mobile source emissions of the precursors of ozone (VOC and NOx) in Lake and Porter Counties that result from the implementation of the projects in the 2040 Regional Transportation Plan as updated and the Fiscal Year 2016 to 2019 Transportation Improvement Program in the years 2015, 2020, 2025, 2030, 2035, 2040 and 2045 are less than the Motor Vehicle Emission Budgets established in the Maintenance Plan included in the U.S. EPA approved State Implementation Plan for Lake and Porter Counties. The on-road mobile source emissions of annual direct PM2.5 and annual nitrogen oxide in the PM2.5 maintenance area that result from the implementation of the projects in the 2040 Regional Transportation Plan as updated and the Fiscal Year 2016 to 2019 Transportation Improvement Program in the years 2015, 2020, 2025, 2030, 2035, 2040 and 2045 are less than the Motor Vehicle Emissions Budgets established in the Maintenance Plan included in the U.S. EPA approved State Implementation Plan for Lake and Porter Counties. Therefore, the 2040 Regional Transportation Plan as updated and the Fiscal Year 2016 to 2019 Transportation

Improvement Program have been found to conform to the requirements of section 176(c) of the Clean Air Act Amendment and the related requirements of the Federal Transportation Conformity Rule (40 CFR Part 51 and 40 CFR Part 93) with respect to ozone and PM2.5.